

## CLAIMS

1. A three-dimensional structure applicable to heart, comprising a cell derived from a part other than myocardium  
5 of an adult.
2. A structure according to claim 1, wherein the cell is a stem cell or a differentiated cell.
- 10 3. A structure according to claim 1, wherein the cell is a mesenchymal cell.
4. A structure according to claim 1, wherein the cell is derived from a myoblast.  
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5. A structure according to claim 4, wherein the myoblast is a skeletal myoblast.
6. A structure according to claim 1, wherein the cell is  
20 a fibroblast.
7. A structure according to claim 1, wherein the cell is a synovial cell.
- 25 8. A structure according to claim 1, wherein the cell is derived from a stem cell.
9. A structure according to claim 1, wherein the cell is derived from a subject, the structure being applied to the  
30 subject.
10. A structure according to claim 1, wherein the cell is not derived from a subject, the structure being applied to

the subject.

11. A structure according to claim 1, wherein the structure expresses at least one non-adult heart marker selected from 5 the group consisting of myosin heavy chain IIa, myosin heavy chain IIb, myosin heavy chain II<sub>d</sub>(II<sub>x</sub>), CD56, MyoD, Myf5, and myogenin.
12. A structure according to claim 11, wherein an expression 10 level of the non-adult heart marker in the structure is at least 50% of an expression level of the non-adult heart marker in skeletal myoblasts.
13. A structure according to claim 1, wherein the 15 three-dimensional structure expresses all of myosin heavy chain IIa, myosin heavy chain IIb, myosin heavy chain II<sub>d</sub>(II<sub>x</sub>), CD56, MyoD, Myf5, and myogenin.
14. A structure according to claim 13, wherein an expression 20 level of each of myosin heavy chain IIa, myosin heavy chain IIb, myosin heavy chain II<sub>d</sub>(II<sub>x</sub>), CD56, MyoD, Myf5, and myogenin in the structure is at least about 50% of an expression level thereof in skeletal myoblasts.
15. A structure according to claim 13, wherein an expression 25 level of each of myosin heavy chain IIa, myosin heavy chain IIb, myosin heavy chain II<sub>d</sub>(II<sub>x</sub>), CD56, MyoD, Myf5, and myogenin in the structure is at least about 100% of an expression level thereof in skeletal myoblasts.
- 30 16. A structure according to claim 1, wherein the cell derived from a part other than myocardium is a cell not derived from heart.

17. A structure according to claim 1, wherein the applicability to heart includes applicability to myocardium.

5 18. A structure according to claim 1, comprising a monolayer cell sheet.

19. A structure according to claim 1, comprising a multilayer cell sheet.

10 20. A structure according to claim 19, wherein the multilayer cell sheet has biological connection.

15 21. A structure according to claim 20, wherein the biological connection is selected from the group consisting of connection via extracellular matrix, electrical connection, and connection without scaffold.

20 22. A medicament, comprising a three-dimensional structure according to any one of claims 1 to 21.

25 23. A medicament according to claim 22, wherein the heart has a disease or disorder selected from the group consisting of heart failure, ischemic heart disease, myocardial infarct, cardiomyopathy, myocarditis, hypertrophic cardiomyopathy, dilated phase hypertrophic cardiomyopathy, and dilated cardiomyopathy.

30 24. A method for producing a three-dimensional structure applicable to heart comprising a cell derived from a part other than myocardium of an adult, the method comprising the steps of:

a) culturing the cell derived from the part other

than myocardium of an adult on a cell culture support grafted with a temperature responsive macromolecule having an upper limit critical solution temperature or lower limit critical solution temperature to water of from 0°C to 80°C;

5           b) setting a culture medium temperature to the upper limit critical solution temperature or more or the lower limit critical solution temperature or less; and

              c) detaching the cultured cell as a three-dimensional structure.

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25. A method according to claim 24, wherein a treatment using a protein degrading enzyme is not performed in or before the detaching step.

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26. A method according to claim 24, wherein the temperature responsive macromolecule is poly(N-isopropylacrylamide).